

## Trend Study 16C-38-97

Study site name: Pleasant Creek .

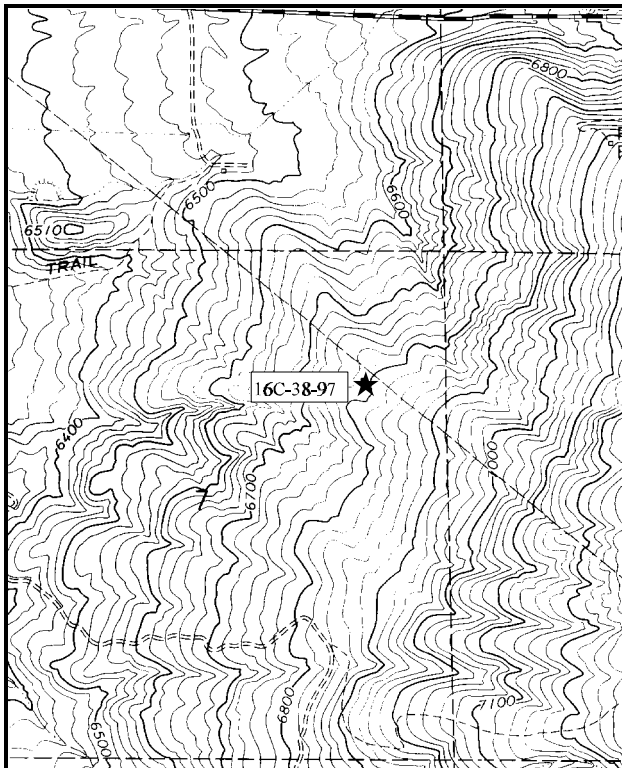
Range Type: Mixed mountain brush

Compass bearing: frequency baseline 133 M degrees.

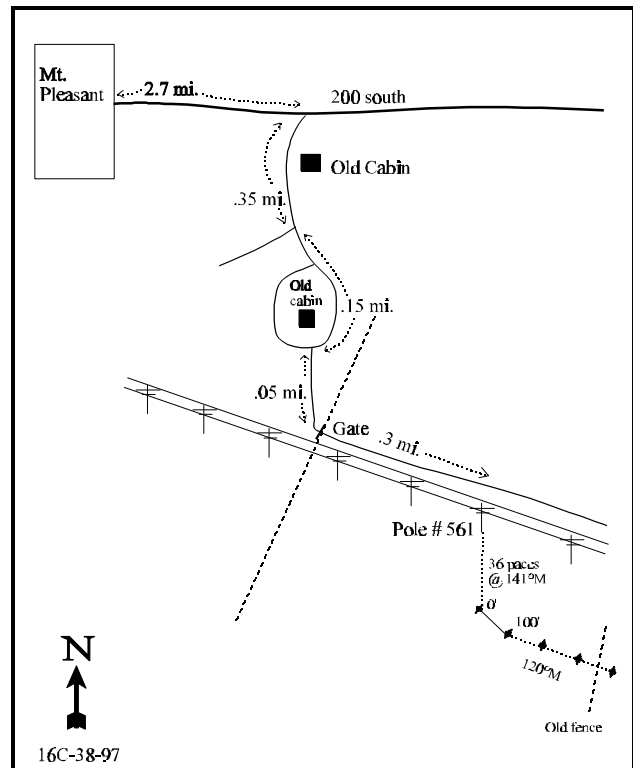
First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

### LOCATION DESCRIPTION

From the intersection of Highway 89 and 200 South in downtown Mt. Pleasant, take 200 Southeast for 2.7 miles. Turn right (south) and go 0.35 miles. Stay to the right and go 0.15 miles to the powerline road. Take a left (east) here and go 0.05 miles to a gate (which maybe locked). From this gate, continue eastward for another 0.3 miles and stop at the third set of power poles from the gate. The 0-foot baseline stake is 36 paces from power pole # 561 at an azimuth of 141 degrees magnetic.



Map Name: Mt. Pleasant .



Diagrammatic Sketch

Township 15S, Range 5E, Section 7

## DISCUSSION

### Trend Study No. 16C-38 (28-9)

The Pleasant Creek study is in mixed mountain brush located in the foothills above the town of Mt. Pleasant. It is beneath the large power transmission lines which cross the mountain. The 1997 pellet group data indicates that deer and elk use is light to moderate, with livestock use being light.

The site is on a northwest aspect with a slope of 6% and an elevation of 6,700 feet. The soils are moderate in depth, with effective rooting depth (see methods) at a little more than 12 inches. Soil textural analysis indicates it to be a clay soil with a pH of 7.2 (neutral soil reaction). Phosphorus is marginal (10.9 ppm) and could be a limiting factor on this site. The soil temperature is relatively cool at 53°F (depth of 14 inches). Rock is common throughout the upper 16 inches of soil. Vegetative cover is very good with adequate litter cover in most places. Percent bare soil is still near 25%, with the bare interspaces exhibiting slight erosion.

The area has a moderately low density for juniper estimated at 70 trees/acre using the point-quarter method. Most of the trees in 1989 were between 1 and 4 feet tall, now their average height is around 7 feet. With their relatively low density, they contribute to a canopy cover of about 6%. The mixed mountain brush canopy is the key component, along with a significant herbaceous understory. The most numerous woody species is low rabbitbrush which provides 24% of the browse cover. Surprisingly, 90% of them show light to moderate utilization. In 1989, they indicated that the population showed signs of significant browsing by domestic sheep that were in the area earlier in the season. There was evidence of summer deer use, but big game, including elk, occupy the area mainly in winter. The key browse species is mountain big sagebrush which coincidentally also makes up 24% of the browse cover. Its density has not changed very much since 1989 (1,799 vs 1,780 plants/acre in 1997). The age class structure is balanced, vigor is good on over 94% of the population. Percent decadency has improved from 22% to only 12% at this time. Use is mostly light to moderate (92%). Other preferred browse species includes: serviceberry, basin big sagebrush, bitterbrush, and snowberry. These less common species together contribute an additional 30% of the total browse cover. Serviceberry and bitterbrush show mostly heavy use, while snowberry displays chiefly light to moderate use.

Forbs are one of the key components on this site. Diversity is high, 34 species were identified in 1997. They contribute to 37% of the herbaceous cover. Several species are especially abundant, including low penstemon, longleaf phlox, showy goldeneye and the increaser species, houndstongue, and stickseed. Grass abundance is moderate, mostly because of Kentucky bluegrass and bluebunch wheatgrass. Together they provide almost 80% of the grass cover. Both show moderate use.

### 1989 APPARENT TREND ASSESSMENT

Soil trend is considered stable with good cover from the herbaceous species and grasses. Diversity and a high density of forbs and shrubs contribute to a stable community. There are some increaser species, but without knowing the grazing history it is difficult to predict future trends as they relate to current management. Overall, it appears to be a rather dynamic, but in the long-term, a stable and productive site.

### 1997 TREND ASSESSMENT

Soil trend is assessed again as stable with percent bare soil remaining about the same and almost 50% of the total vegetative cover coming from herbaceous species. The trend for preferred browse is stable as long as canopy cover from juniper stays about 6-8% and density remains relatively low (70 trees/acre). Trend for the herbaceous understory is mixed. Sum of nested frequency for perennial grasses indicates that it is slightly

improved, but for perennial forbs it has slightly gone down. Because grasses make up the majority of the herbaceous cover (63%), the trend will continue to be stable.

#### TREND ASSESSMENT

soil - stable

browse - stable

herbaceous understory - stable

#### HERBACEOUS TRENDS --

Herd unit 16C , Study no: 38

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover % '97
		'89	'97	'89	'97	
G	Agropyron cristatum	-	6	-	2	.06
G	Agropyron spicatum	166	171	66	60	8.60
G	Bromus japonicus (a)	-	93	-	33	.99
G	Bromus tectorum (a)	-	73	-	28	.63
G	Melica bulbosa	1	2	1	1	.00
G	Oryzopsis hymenoides	-	*9	-	5	.08
G	Poa fendleriana	8	-	3	-	-
G	Poa pratensis	115	101	43	31	3.78
G	Poa secunda	10	*48	7	19	.46
G	Sitanion hystrix	16	29	7	12	.34
G	Stipa columbiana	-	2	-	1	.03
G	Stipa lettermani	15	*24	6	13	.71
Total for Grasses		331	558	133	205	15.73
F	Achillea millefolium	-	4	-	1	.38
F	Agoseris glauca	-	3	-	1	.00
F	Alyssum alyssoides (a)	-	7	-	3	.01
F	Allium spp.	3	*12	1	6	.05
F	Arabis spp.	4	2	2	1	.00
F	Astragalus convallarius	40	45	18	23	.59
F	Aster spp.	79	76	31	31	1.18
F	Astragalus spp.	14	*1	7	1	.00
F	Astragalus utahensis	-	5	-	2	.01
F	Carduus nutans (a)	-	10	-	4	.21
F	Chaenactis douglasii	13	16	9	8	.06
F	Cirsium spp.	13	15	6	8	.06

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover % '97
		'89	'97	'89	'97	
F	Convolvulus arvensis	-	3	-	1	.01
F	Collomia linearis (a)	-	15	-	7	.03
F	Collinsia parviflora (a)	-	58	-	24	.12
F	Cymopterus spp.	-	2	-	2	.01
F	Cynoglossum officinale	94	*21	40	9	.17
F	Epilobium paniculatum (a)	-	3	-	3	.02
F	Eriogonum umbellatum	28	*-	13	-	.00
F	Hackelia patens	97	89	44	36	.77
F	Lepidium spp.	-	6	-	2	.01
F	Linum kingii	7	-	2	-	-
F	Lithospermum ruderales	3	4	3	2	.03
F	Machaeranthera canescens	79	*40	37	16	.26
F	Microsteris gracilis (a)	-	30	-	12	.08
F	Penstemon humilis	242	*190	94	73	3.26
F	Phlox longifolia	123	114	55	45	.30
F	Polygonum douglasii (a)	-	8	-	3	.01
F	Ranunculus testiculatus (a)	-	132	-	47	.45
F	Sphaeralcea coccinea	10	19	3	8	.14
F	Taraxacum officinale	1	10	1	5	.02
F	Tragopogon dubius	4	*20	3	9	.04
F	Unknown forb-annual	-	2	-	1	.00
F	Veronica biloba (a)	-	106	-	38	.46
F	Vicia americana	-	*33	-	15	.27
F	Viguiera multiflora	35	*4	19	4	.05
F	Viola spp.	-	3	-	1	.03
Total for Forbs		889	1108	388	452	9.22

\* Indicates significant difference at % = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 16C , Study no: 38

T y p e	Species	Strip Frequency '97	Average Cover % '97
B	Amelanchier alnifolia	2	.03
B	Artemisia tridentata tridentata	11	.90
B	Artemisia tridentata vaseyana	49	7.25
B	Chrysothamnus nauseosus albicaulis	2	.38
B	Chrysothamnus viscidiflorus viscidiflorus	94	7.21
B	Gutierrezia sarothrae	2	.06
B	Juniperus osteosperma	6	5.63
B	Purshia tridentata	24	5.65
B	Rosa spp.	2	.30
B	Symphoricarpos oreophilus	50	2.62
B	Tetradymia canescens	2	.15
Total for Browse		244	30.21

BASIC COVER --

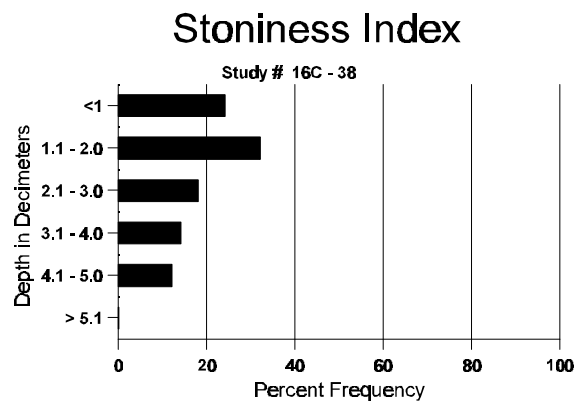
Herd unit 16C , Study no: 38

Cover Type	Nested Frequency '97	Average Cover % '89 '97	
Vegetation	369	16.50	46.87
Rock	68	1.75	.58
Pavement	175	2.75	1.09
Litter	392	54.00	42.92
Cryptogams	49	0	1.62
Bare Ground	259	25.00	24.11

# SOIL ANALYSIS DATA --

Herd Unit 16C, Study no: 38

Effective rooting depth (inches)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
12.2	53.0 (14.1)	7.2	25.7	29.4	44.8	4.7	10.9	246.4	.5



# PELLET GROUP FREQUENCY --

Herd unit 16C , Study no: 38

Type	Quadrat Frequency '97
Sheep	6
Rabbit	3
Elk	11
Deer	12
Cattle	1

## BROWSE CHARACTERISTICS --

Herd unit 16C , Study no: 38

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier alnifolia																		
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	1	-	-	-	-	-	1	-	-	-	20		1	
M	89	-	1	1	-	-	-	-	-	-	1	1	-	-	133	17 15	2	
	97	-	-	1	-	-	-	-	-	-	1	-	-	-	20	21 27	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		50%			50%			00%			-70%							
'97		00%			50%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	133	Dec:	-			
												'97	40		-			
Artemisia tridentata tridentata																		
S	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	8	-	-	-	-	-	-	-	-	8	-	-	-	160		8	
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0	
	97	6	-	-	1	-	-	-	-	-	7	-	-	-	140	54 53	7	
D	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	5	-	-	-	-	-	-	-	-	1	-	-	4	100		5	
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	3	-	-	-	-	-	-	-	-	3	-	-	-	260		13	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		00%			00%			00%			Appeared							
'97		00%			00%			20%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	0	Dec:	0%			
												'97	400		25%			

A Y G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
S	89	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	97	15	-	-	-	-	-	-	-	-	15	-	-	-	300			15
Y	89	5	-	-	-	-	-	-	-	-	5	-	-	-	333			5
	97	21	-	-	3	-	-	-	-	-	24	-	-	-	480			24
M	89	13	3	-	-	-	-	-	-	-	15	-	1	-	1066	27	34	16
	97	29	22	1	2	-	-	-	-	-	54	-	-	-	1080	29	32	54
D	89	5	1	-	-	-	-	-	-	-	6	-	-	-	400			6
	97	4	6	1	-	-	-	-	-	-	6	-	-	5	220			11
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	620			31
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		15%			00%			04%			- 1%							
'97		31%			02%			06%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	1799	Dec:	22%			
												'97	1780		12%			
Chrysothamnus nauseosus albicaulis																		
Y	89	2	-	-	1	-	-	-	-	-	3	-	-	-	200			3
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	89	3	1	-	-	-	-	2	-	-	6	-	-	-	400	35	22	6
	97	-	1	-	-	-	-	-	-	-	1	-	-	-	20	30	40	1
D	89	3	1	-	-	-	-	-	-	-	4	-	-	-	266			4
	97	-	1	-	-	-	-	-	-	-	-	-	-	1	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		15%			00%			00%			-95%							
'97		100%			00%			50%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	866	Dec:	31%			
												'97	40		50%			

A Y G R E	Form Class (No. of Plants)	Vigor Class									Plants Per Acre	Average (inches) Ht. Cr.		Total			
		1	2	3	4	5	6	7	8	9		1	2		3	4	
Chrysothamnus viscidiflorus viscidiflorus																	
S	89	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1
	97	19	-	-	-	-	-	-	-	-	19	-	-	-	380		19
Y	89	85	3	3	-	-	-	-	-	-	91	-	-	-	6066		91
	97	109	-	-	7	-	-	-	-	-	116	-	-	-	2320		116
M	89	98	34	13	-	-	-	-	-	-	145	-	-	-	9666	11 12	145
	97	452	18	-	61	-	-	-	-	-	531	-	-	-	10620	9 12	531
D	89	10	20	5	-	-	-	-	-	-	35	-	-	-	2333		35
	97	10	-	-	-	-	-	-	-	-	8	-	-	2	200		10
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2
% Plants Showing		Moderate Use			Heavy Use			Poor Vigor			%Change						
'89		21%			08%			00%			-27%						
'97		03%			00%			.30%									
Total Plants/Acre (excluding Dead & Seedlings)												'89	18065	Dec:	13%		
												'97	13140		2%		
Gutierrezia sarothrae																	
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	97	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0
	97	6	-	-	-	-	-	-	-	-	6	-	-	-	120	8 7	6
% Plants Showing		Moderate Use			Heavy Use			Poor Vigor			%Change						
'89		00%			00%			00%			Appeared						
'97		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'89	0	Dec:	-		
												'97	180		-		
Juniperus osteosperma																	
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
M	89	1	-	-	-	-	-	-	-	-	1	-	-	-	66	93 89	1
	97	-	-	-	-	-	-	4	-	-	4	-	-	-	80	- -	4
% Plants Showing		Moderate Use			Heavy Use			Poor Vigor			%Change						
'89		00%			00%			00%			+45%						
'97		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'89	66	Dec:	-		
												'97	120		-		

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Purshia tridentata																		
M	89	-	1	-	-	-	-	-	-	-	1	-	-	-	66	16	26	1
	97	-	1	9	-	5	21	-	-	-	36	-	-	-	720	44	49	36
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		100%			00%			00%			+91%							
'97		17%			83%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	66	Dec:	-			
												'97	720		-			
Rosa woodsii																		
Y	89	18	-	-	-	-	-	-	-	-	18	-	-	-	1200			18
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	89	17	-	-	-	-	-	-	-	-	17	-	-	-	1133	14	16	17
	97	8	-	-	-	-	-	-	-	-	8	-	-	-	160	10	17	8
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		00%			00%			00%			-91%							
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	2333	Dec:	-			
												'97	200		-			
Symphoricarpos oreophilus																		
S	89	-	-	-	4	-	-	-	-	-	4	-	-	-	266			4
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	89	20	-	-	-	-	-	-	-	-	20	-	-	-	1333			20
	97	22	-	-	2	-	-	-	-	-	24	-	-	-	480			24
M	89	26	6	-	-	1	-	-	-	-	31	-	2	-	2200	17	17	33
	97	45	23	1	23	-	-	-	-	-	92	-	-	-	1840	11	23	92
D	89	4	-	-	1	-	-	-	-	-	5	-	-	-	333			5
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		12%			00%			03%			-39%							
'97		20%			.85%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	3866	Dec:	9%			
												'97	2340		1%			

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Tetradymia canescens																		
S	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	12	-	-	-	-	-	-	-	-	12	-	-	-	240		12	
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	97	10	-	-	-	-	-	-	-	-	10	-	-	-	200	12 25	10	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		00%			00%			00%			Appeared							
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'89	0	Dec:	-	
														'97	440		-	